

AMENDMENTS TO THE CLAIMS

Please cancel claims 1, 10, 15, 19-24, 26, 31, and 34-59, amend claims 2, 5, 11-14, 16, 25, 27-30, 32, and 33 and add new claims 60-65. No new matter is believed to be introduced by the aforementioned amendments and new claims. The following listing of claims will replace all prior versions and listings of claims in the application.

1. **(Canceled)**

2. **(Currently Amended)** ~~[[The]]~~ A return path transmitter of claim 1, including for use in conjunction with a local system that generates an analog RF data signal to be conveyed to a head end system, the return path transmitter comprising:

a sample clock generator having a first clock oscillator for generating a sample clock;

an RF signal receiver, coupled to the sample clock generator, for receiving and converting the analog RF data signal into a first data stream of digitized RF data samples at a rate determined by the sample clock;

supplemental channel circuitry for providing a second data stream;

a multiplexor coupled to the RF signal receiver and the supplemental channel circuitry to receive the first data stream and second data stream and to output a combined data stream;

an output clock generator having a second clock oscillator for generating an output clock;

an optical transmitter for converting the combined data stream into a serialized optical data signal for transmission over an optical fiber at a rate determined by the output clock;

a first memory device configured to buffer the first data stream; and

a second memory device configured to buffer the second data stream;

wherein:

the sample clock has an associated sample rate;

the second data stream is generated by the supplemental channel circuitry at a rate that is less than the sample rate;

the multiplexor is configured to monitor a fullness level of the first memory device, output data stored in the first memory device in a first mode when the fullness level of the first memory device is more than a predefined threshold level, and to output data stored in the first memory device and data stored in the second memory device in a second interleaved mode when the fullness level of the first memory device is less than the predefined threshold level.

3. **(Original)** The return path transmitter of claim 2, wherein:
the supplemental channel circuitry generates maintenance data indicative of an operational state of the return path transmitter.
4. **(Original)** The return path transmitter of claim 2, wherein:
the first memory device comprises a dual ported random access memory device.
5. **(Currently Amended)** ~~[[The]]~~ A return path transmitter of claim 1, including for use in conjunction with a local system that generates an analog RF data signal to be conveyed to a head end system, the return path transmitter comprising:
a sample clock generator having a first clock oscillator for generating a sample clock;
an RF signal receiver, coupled to the sample clock generator, for receiving and converting the analog RF data signal into a first data stream of digitized RF data samples at a rate determined by the sample clock;
supplemental channel circuitry for providing a second data stream;
a multiplexor coupled to the RF signal receiver and the supplemental channel circuitry to receive the first data stream and second data stream and to output a combined data stream;
an output clock generator having a second clock oscillator for generating an output clock;
an optical transmitter for converting the combined data stream into a serialized optical data signal for transmission over an optical fiber at a rate determined by the output clock;
a port for receiving a third data stream from a source external to the return path transmitter, the third data stream having a data rate of at least 5 Mb/s; and
merge circuitry for merging the first and third data streams into a merged data stream; wherein the multiplexor is coupled to the merge circuitry and the supplemental channel circuitry to receive the merged data stream and second data stream and to output the combined data stream.

6. **(Previously presented)** The return path transmitter of claim 5, including:
a first memory for buffering the merged data stream; and
a second memory device configured to buffer the second data stream;
wherein:
the sample clock has an associated sample rate;
the second data stream is generated by the supplemental channel circuitry at a rate that is less than the sample rate;
the multiplexor is configured to monitor a fullness level of the first memory device, output data stored in the first memory device in a first mode when the fullness level of the first memory device is more than a predefined threshold level, and to output data stored in the first memory device and data stored in the second memory device in a second interleaved mode when the fullness level of the first memory device is less than the predefined threshold level.
7. **(Original)** The return path transmitter of claim 5, wherein:
the supplemental channel circuitry generates maintenance data indicative of an operational state of the return path transmitter.
8. **(Original)** The return path transmitter of claim 7, wherein:
the supplemental channel circuitry includes at least one sensor for measuring an operational parameter selected from a group consisting of temperature and supply voltage.
9. **(Original)** The return path transmitter of claim 7, wherein: the supplemental channel circuitry includes
an RF data sampler for sampling data from the first data stream to generate a set of sampled RF data and
circuitry for including the sampled RF data in the second data stream.
10. **(Canceled)**

11. **(Currently Amended)** ~~[[The]]~~ A return path transmitter of claim 10, wherein for use in conjunction with a local system that generates an analog RF data signal to be conveyed to a head end system, the return path transmitter comprising:

a sample clock generator having a first clock oscillator for generating a sample clock;

an RF signal receiver, coupled to the sample clock generator, for receiving and converting the analog RF data signal into a first data stream of digitized RF data samples at a rate determined by the sample clock;

supplemental channel circuitry for providing a second data stream, the supplemental channel circuitry configured to generate maintenance data indicative of an operational state of the return path transmitter and including the maintenance data in the second data stream, the supplemental channel circuitry includes including at least one sensor for measuring an operational parameter selected from a group consisting of temperature and supply voltage;

a multiplexor coupled to the RF signal receiver and the supplemental channel circuitry to receive the first data stream and second data stream and to output a combined data stream; and

an output clock generator having a second clock oscillator for generating an output clock;

an optical transmitter for converting the combined data stream into a serialized optical data signal for transmission over an optical fiber at a rate determined by the output clock.

12. **(Currently Amended)** ~~[[The]]~~ A return path transmitter of claim 10, wherein for use in conjunction with a local system that generates an analog RF data signal to be conveyed to a head end system, the return path transmitter comprising:

a sample clock generator having a first clock oscillator for generating a sample clock;

an RF signal receiver, coupled to the sample clock generator, for receiving and converting the analog RF data signal into a first data stream of digitized RF data samples at a rate determined by the sample clock;

supplemental channel circuitry for providing a second data stream, the supplemental channel circuitry configured to generate maintenance data indicative of an operational state of the return path transmitter and including the maintenance data in the second data stream, the supplemental channel circuitry includes including an internal memory device configured to store data including at least one of a serial number, model number, date of manufacture, software revision number and hardware revision number of the transmitter, wherein the supplemental channel circuitry is further being configured to include at least a portion of the data stored in the internal memory device in the maintenance data;

a multiplexor coupled to the RF signal receiver and the supplemental channel circuitry to receive the first data stream and second data stream and to output a combined data stream;

an output clock generator having a second clock oscillator for generating an output clock; and

an optical transmitter for converting the combined data stream into a serialized optical data signal for transmission over an optical fiber at a rate determined by the output clock.

13. **(Currently Amended)** The return path transmitter of claim ~~[[1]]~~ 2, wherein: the supplemental channel circuitry include

an RF data sampler for sampling data from the first data stream to generate a set of sampled RF data and

circuitry for including the sampled RF data in the second data stream.

14. **(Currently Amended)** The return path transmitter of claim ~~[[1]]~~ 2, wherein:

the supplemental channel circuitry is configured to generate the second data stream intermittently;

the optical transmitter includes circuitry for inserting padding words into the combined data stream so as to maintain the combined data stream at a fixed data rate.

15. **(Canceled)**

16. **(Currently Amended)** ~~[[The]]~~ A return path transmitter of claim 15, including for use in conjunction with first and second local systems that generate first and second respective analog RF data signals to be conveyed to a head end system, the return path transmitter comprising:

a sample clock generator for generating a sample clock;

first and second RF signal receivers, coupled to the sample clock generator, for receiving and converting the first and second respective analog RF data signals into first and second data streams of digitized RF data samples at a rate determined by the sample clock;

supplemental channel circuitry for providing a third data stream;

a multiplexor coupled to the RF signal receivers and the supplemental channel circuitry to receive the first, second and third data streams and to output a combined data stream;

an optical transmitter for converting the combined data stream into a serialized optical data signal for transmission over an optical fiber;

a first memory device configured to buffer the first data stream;

a second memory device configured to buffer the second data stream;

a third memory device configured to buffer the third data stream; and

an output clock generator for generating an output clock;

wherein:

the sample clock has an associated sample rate;

the third data stream is generated by the supplemental channel circuitry at a rate that is less than the sample rate;

the multiplexor is configured to monitor a fullness level of the first memory device, output data stored in the first and second memory devices in a first mode when the fullness level of the first memory device is more than a predefined threshold level, and to output data stored in the first and second memory devices and data stored in the third memory device in a second interleaved mode when the fullness level of the first memory device is less than the predefined threshold level.

17. **(Original)** The return path transmitter of claim 16, wherein:

the supplemental channel circuitry generates maintenance data indicative of an operational state of the return path transmitter.

18. **(Original)** The return path transmitter of claim 16, wherein:

the first memory device comprises a dual ported random access memory device.

19-24. (Canceled)

25. (Currently Amended) ~~[[The]]~~ A method ~~of claim 24, including~~ of transmitting data representing an analog RF signal generated at a local system, comprising:

generating a sample clock having an associated sample rate;

receiving and converting the analog RF signal into a first data stream of digitized RF data samples at the sample rate determined by the sample clock;

providing a second data stream, the second data stream being provided at a rate that is less than the sample rate;

combining the first data stream and second data stream to generate a combined data stream;

converting the combined data stream into a serialized optical data signal for transmission over an optical fiber;

generating maintenance data indicative of an operational state of a return path transmitter;

including the maintenance data in the second data stream;

locally storing data including at least one of a serial number, model number, date of manufacture, software revision number and hardware revision number of the transmitter, and

including in the second data stream at least a portion of the locally stored data.

26. (Canceled)

27. **(Currently Amended)** ~~[[The]]~~ A method of claim 26, including of transmitting data representing an analog RF signal generated at a local system, comprising:

generating a sample clock having an associated sample rate;

receiving and converting the analog RF signal into a first data stream of digitized RF data samples at the sample rate determined by the sample clock;

providing a second data stream, the second data stream being provided at a rate that is less than the sample rate;

receiving a third data stream from a source external to a return path transmitter, the third data stream having a data rate of at least 5 Mb/s;

merging the first and third data streams into a merged data stream;

combining the merged data stream and second data stream to generate a combined data stream;

generating an output clock having an associated output rate; and

converting the combined data stream into a serialized optical data signal for transmission over an optical fiber at the output rate associated with the output clock;

buffering the merged data stream in a first memory device;

buffering the second data stream in a second memory device;

monitoring a fullness level of the first memory device; and

outputting data stored in the first memory device in a first mode when the fullness level of the first memory device is more than a predefined threshold level, and outputting data stored in the first memory device and data stored in the second memory device in a second interleaved mode when the fullness level of the first memory device is less than the predefined threshold level.

28. **(Currently Amended)** ~~[[The]]~~ A method of claim 23, including of transmitting data representing an analog RF signal generated at a local system, comprising:

generating a sample clock having an associated sample rate;
receiving and converting the analog RF signal into a first data stream of digitized RF data samples at the sample rate determined by the sample clock;
providing a second data stream, the second data stream being provided at a rate that is less than the sample rate;
combining the first data stream and second data stream to generate a combined data stream;
generating an output clock having an associated output rate;
converting the combined data stream into a serialized optical data signal for transmission over an optical fiber at the output rate associated with the output clock;
buffering the first data stream in a first memory device;
buffering the second data stream in a second memory device;
monitoring a fullness level of the first memory device; and
outputting data stored in the first memory device in a first mode when the fullness level of the first memory device is more than a predefined threshold level, and outputting data stored in the first memory device and data stored in the second memory device in a second interleaved mode when the fullness level of the first memory device is less than the predefined threshold level.

29. **(Currently Amended)** The method of claim ~~[[23]]~~ 25, including:
sampling data from the first data stream to generate a set of sampled RF data and
including the sampled RF data in the second data stream.

30. **(Currently Amended)** The method of claim ~~[[23]]~~ 25, wherein the second data stream is provided intermittently; and the method further comprises inserting padding words into the combined data stream so as to maintain the combined data stream at a fixed data rate.

31. **(Canceled)**

32. **(Currently Amended)** [[The]] A method of ~~claim 31~~, including transmitting data representing first and second analog RF signals generated at first and second local systems, comprising:
generating a sample clock having an associated sample rate;
receiving and converting the first and second respective analog RF data signals into first and second data streams of digitized RF data samples at the sample rate determined by the sample clock;
providing a third data stream;
combining the first, second and third data streams to generate a combined data stream;
generating an output clock having an associated output rate;
converting the combined data stream into a serialized optical data signal for transmission over an optical fiber at the output rate associated with the output clock;
buffering the first data stream in a first memory device;
buffering the second data stream in a second memory device;
buffering the third data stream in a third memory device;
monitoring a fullness level of the first memory device; and
outputting data stored in the first and second memory devices in a first mode when the fullness level of the first memory device is more than a predefined threshold level, and outputting data stored in the first and second memory devices and data stored in the third memory device in a second interleaved mode when the fullness level of the first memory device is less than the predefined threshold level.

33. **(Currently Amended)** [[The]] A method of ~~claim 31~~, wherein transmitting data representing first and second analog RF signals generated at first and second local systems, comprising:
generating a sample clock having an associated sample rate;
receiving and converting the first and second respective analog RF data signals into first and second data streams of digitized RF data samples at the sample rate determined by the sample clock;
providing a third data stream—includes receiving stream, the third data stream being received from a digital data source external to [[the]] a return path transmitter, the third data stream having a data rate of at least 5 Mb/s Mb/s;
combining the first, second and third data streams to generate a combined data stream; and
converting the combined data stream into a serialized optical data signal for transmission over an optical fiber.

34-59. **(Canceled)**

60. **(New)** The return path transmitter of claim 5, wherein: the supplemental channel circuitry includes:

an RF data sampler for sampling data from the first data stream to generate a set of sampled RF data; and

circuitry for including the sampled RF data in the second data stream.

61. **(New)** The return path transmitter of claim 5, wherein:

the supplemental channel circuitry is configured to generate the second data stream intermittently; and

the optical transmitter includes circuitry for inserting padding words into the combined data stream so as to maintain the combined data stream at a fixed data rate.

62. **(New)** The return path transmitter of claim 11, wherein: the supplemental channel circuitry includes:

an RF data sampler for sampling data from the first data stream to generate a set of sampled RF data; and

circuitry for including the sampled RF data in the second data stream.

63. **(New)** The return path transmitter of claim 11, wherein:

the supplemental channel circuitry is configured to generate the second data stream intermittently; and

the optical transmitter includes circuitry for inserting padding words into the combined data stream so as to maintain the combined data stream at a fixed data rate.

64. **(New)** The return path transmitter of claim 12, wherein: the supplemental channel circuitry includes:

an RF data sampler for sampling data from the first data stream to generate a set of sampled RF data; and

circuitry for including the sampled RF data in the second data stream.

65. (New) The return path transmitter of claim 12, wherein:
- the supplemental channel circuitry is configured to generate the second data stream intermittently;
- and
- the optical transmitter includes circuitry for inserting padding words into the combined data stream so as to maintain the combined data stream at a fixed data rate.